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Non-passerine birds from Laguna Melincué Ramsar Site, Santa Fe province, Argentina

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Abstract: We present a waterbird inventory of the Laguna Melincué Ramsar Site in southern Santa Fe province, Argentina. We record 109 species from 28 families of non-passerine birds, including the 14 Nearctic species, four southern austral migrant species, three northern austral migrants, 17 partial migrants, and two altitudinal migrants. The eight most abundant species belong to different families and trophic groups. Thirty-six species were observed nesting or rearing chicks. This baseline knowledge of non-passerine birds will be useful to assist future conservation studies in this highly threatened area.

Key words: agroecosystems; Pampas; waterbirds; wetlands; Laguna Melincué Ramsar Site

INTRODUCTION

The grassland vegetation of the Argentine Pampas has been completely modified over the last century by intensive crop production, as well as for pastures for cattle raising (Vega et al. 2009; Viglizzo et al. 2011). Nowadays, the modified landscapes of these extensive plains are mainly composed of a few crop species (e.g., soybean, maize and wheat) and pastures (alfalfa and ryegrass). There are, however, many scattered wetlands within this homogeneous and low-diversity matrix of agroecosystems. These wetlands are known for providing several ecosystem services (Barral and Maceira 2012; Laterra et al. 2012), and some of them are key habitats for many resident and migratory waterbirds (Romano et al. 2005; de la Peña 2010; Brandolin et al. 2011). Many of these wetlands are subject to several pressures and threats, such as agriculture, livestock raising, water management and hunting (Marconi and Sureda 2008; Brandolin et al. 2013).

Despite their conservation value, most of these wetlands have no legal protection (Canevari et al. 1998). One exception is Laguna Melincué, a large wetland recognized as an Important Bird Area (Di Giacomo et al. 2005), which was declared Ramsar site in 2008 due to its importance for waterbirds (The Ramsar Convention on Wetlands 2013). We have been conducting non-passerine waterbird surveys at Laguna Melincué for more than 20 years. In this work, we update our own and others' previous published waterbird and landbird data (Romano et al. 2005; Saggese et al. 2007; Giraudo et al. 2008), including new records of non-passerine species taken during the last 12 years.

MATERIAL AND METHODS

Laguna Melincué is located in Santa Fe province, Argentina (33°43′ S, 061°28′ W, 84 m above sea level; Figure 1). Its watershed comprises 678 km² and is the collection basin of several wet meadows. This shallow lake has a maximum depth about 6–7 m and a highly variable surface area ranging from 48–145 km². The water is moderately saline (about 3–6 g/dm³ of total dissolved solids), with high pH (range 9–11) and low water transparency (about 0.15 m with a Secchi disk) (Romano et al. 2005, 2008). Water level fluctuations expose extensive mud flats and the surrounding vegetation is mainly composed by halophilous prairies dominated by *Distichlis spicata* and *Paspalum vaginatum* (Romano et al. 2005). Grasslands surrounding these wetlands are mainly used for cattle raising.

We have conducted systematic annual waterbird surveys at Laguna Melincué Ramsar Site for more than 20 years (1992–2014). Each year, we identified and counted waterbirds along several transects using binoculars (10×) and spotting scopes (15/45× and 22/67×). The

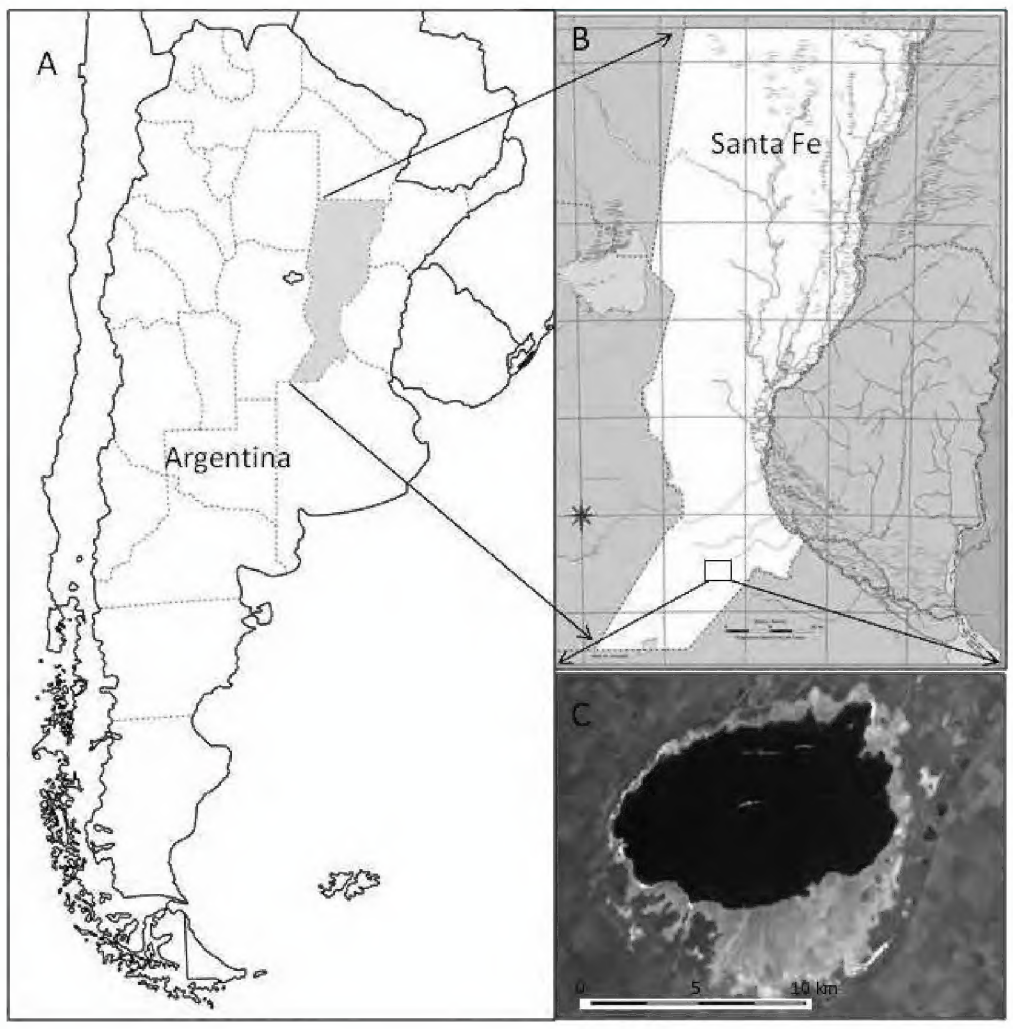

Figure 1. Location of the study site in Laguna Melincué Ramsar Site, Santa Fe province, Argentina.

information of the first 10 years (1992–2002) has been published elsewhere (Romano et al. 2005). Now, we add some new records based on similar waterbird surveys carried out during the last 12 years (2003–2014). Raptors were recorded during a study evaluating the presence of anthrax spores in their feces (Saggese et al. 2007). Finally, other landbird species were recorded while doing the systematic waterbird censuses, as well as by personal records taken by one of us, M. Luppi, while doing his duty as an official fauna keeper at Melincué. During all these surveys we recorded nesting activities or the presence of juveniles.

Species were classified according to their relative abundances for the whole study period as very abundant (>10,000 observations), abundant (1,000–10,000 observations), scarce (100–1,000 observations), and rare (<100 observations) (Brandolin et al. 2011). We followed Fandiño and Giraudo (2010) and Brandolin et al. (2011) to classify species as 'residents' or 'migrants'. The latter were divided in 'Nearctic migrants' (i.e., species that nest in the Nearctic and then migrate to the south being recorded in the area in spring and summer), 'northern austral migrants' (i.e., species that nest in the area in spring and summer and then migrate to northern areas), 'southern austral migrants' (i.e., species that nest in southern Argentina in spring and summer and disperse to the study area in autumn and winter), 'Altitudinal Migrants' (i.e., species that nest in the High Andes in summer and migrate to the area in winter) and 'Partial Migrants' (i.e., species that move from the study area to other areas, but without any clear pattern).

RESULTS

We recorded the presence of 109 species from 28 families of non-passerine birds (Table 1). The more diverse families were Anatidae (16 species), Scolopacidae (13 species), Accipitridae (9 species) and Ardeidae (8 species). Most bird species are resident in the area. However, we recorded 14 Nearctic species: *Buteo swainsoni* Bonaparte, 1838, *Pluvialis dominica* (Statius Muller, 1776), *Limosa haemastica* (Linnaeus, 1758), *Bartramia longicauda* (Bechstein, 1812), *Tringa melanoleuca* (Gmelin, 1789), *Tringa flavipes* (Gmelin, 1789), *Tringa solitaria* Wilson, 1813, *Calidris canutus* (Linnaeus, 1758), *Calidris fuscicollis* (Vieillot, 1819), *Calidris bairdii* (Coues, 1861), *Calidris melanotos* (Vieillot, 1819), *Calidris himantopus* (Bonaparte, 1826), *Tryngites subruficollis* (Vieillot, 1819) and *Phalaropus tricolor* (Vieillot, 1819). There were also four Southern Austral Migrant species: *Theristicus*

Table 1. Non-passerine bird species recorded in Laguna Melincué Ramsar Site, Santa Fe province, Argentina. RA (relative abundance): VA = very abundant, A = abundant, R = rare, S = scarce; MS (migratory status): R = resident, N = Nearctic, NAM = northern austral migrants, SAM = southern austral migrants, Alt = altitudinal migrants, and P = partial migrants. N = nesting. The systematic order follows Remsen et al. (2013).

Family / species	English name	RA	MS	N
Tinamidae				
Nothura maculosa (Temminck, 1815)	Spotted Nothura	S	R	N
Anhimidae				
Chauna torquata (Oken, 1816)	Southern Screamer	R	R	N
Anatidae				
Dendrocygna bicolor (Vieillot, 1816)	Fulvous Whistling-duck	S	P	
Dendrocygna viduata (Linnaeus, 1766)	White-faced Whistling-duck	A	P	
Cygnus melancoryphus (Molina, 1782)	Black-necked Swan	S	P	
Coscoroba coscoroba (Molina, 1782)	Coscoroba Swan	A	P	N
Callonetta leucophrys (Vieillot, 1816)	Ringed Teal	R	P	
Amazonetta brasiliensis (Gmelin, 1789)	Brazilian Teal	R	P	
Anas sibilatrix Poeppig, 1829	Chiloe Wigeon	S	P	
Anas flavirostris Vieillot, 1816	Yellow-billed Teal	A	R	N
Anas georgica Gmelin, 1789	Yellow-billed Pintail	A	R	N
Anas bahamensis Linnaeus, 1758	White-cheeked Pintail	A	R	N

Continued

Table 1. *Continued.*

Family / species	English name	RA	MS	N
Anas versicolor Vieillot, 1816	Silver Teal	A	R	N
Anas cyanoptera Vieillot, 1816	Cinnamon Teal	R	P	
Anas platalea Vieillot, 1816	Red Shoveler	VA	R	
Netta peposaca (Vieillot, 1816)	Rosy-billed Pochard	A	P	
Heteronetta atricapilla (Merrem, 1841)	Black-headed Duck	S	P	
Oxyura vittata (Philippi, 1860)	Lake Duck	R	R	
Podicipedidae				
Rollandia rolland (Quoy and Gaimard, 1824)	White-tufted Grebe	A	R	
Podilymbus podiceps (Linnaeus, 1758)	Pied-billed Grebe	S	R	
Podiceps major (Boddaert, 1783)	Great Grebe	S	R	N
Podiceps occipitalis Garnot, 1826	Silvery Grebe	R	R	
Phoenicopteridae				
Phoenicopterus chilensis Molina, 1782	Chilean Flamingo	VA	R	N
Phoenicoparrus andinus (Philippi, 1854)	Andean Flamingo	A	Alt	
Phoenicoparrus jamesi Sclater, 1886	James's Flamingo	R	Alt	
Ciconiidae				
Ciconia maguari (Gmelin, 1789)	Maguari Stork	S	R	N
Mycteria americana Linnaeus, 1758	Wood Stork	S	NAM	
Phalacrocoracidae				
Phalacrocorax brasilianus (Gmelin, 1789)	Neotropic Cormorant	A	R	
Ardeidae				
Ixobrychus involucris (Vieillot, 1823)	Stripe-backed Bittern	R	R?	
Nycticorax nycticorax (Linnaeus, 1758)	Black-crowned Night-heron	S	R	N
Butorides striata (Linnaeus, 1758)	Striated Heron	R	R	
Bubulcus ibis (Linnaeus, 1758)	Cattle Egret	A	R	
Ardea cocoi Linnaeus, 1766	Cocoi Heron	R	R	
Ardea alba Linnaeus, 1758	Great Egret	A	R	
Syrigma sibilatrix (Temminck, 1824)	Whistling Heron	S	R	N
Egretta thula (Molina, 1782)	Snowy Egret	A	R	
Threskiornithidae				
Plegadis chihi (Vieillot, 1817)	White-faced Ibis	VA	R	
Phimosus infuscatus (Lichtenstein, 1823)	Bare-faced Ibis	S	R	
Theristicus melanopis (Gmelin, 1789)	Black-faced Ibis	S	SAM	
Platalea ajaja Linnaeus, 1758	Roseate Spoonbill	A	NAM	
Theristicus caerulescens (Vieillot, 1817)	Plumbeous Ibis	R	NAM	
Accipitridae				
Elanus leucurus (Vieillot, 1818)	White-tailed Kite	S	R	N
Rostrhamus sociabilis (Vieillot, 1817)	Snail Kite	S	R	
Circus cinereus Vieillot, 1816	Cinereous Harrier	R	R	
Circus buffoni (Gmelin, 1788)	Long-winged Harrier	R	R	
Accipiter striatus Vieillot, 1808	Sharp-shinned Hawk	R	R?	
Geranoaetus melanoleucus (Vieillot, 1819)	Black-chested Buzzard-eagle	R	P	
Rupornis magnirostris (Gmelin, 1788)	Roadside Hawk	S	R	N
Buteo swainsoni Bonaparte, 1838	Swainson's Hawk	R	N	
Geranoaetus albicaudatus (Vieillot, 1816)	White-tailed Hawk	R	P	
Aramidae				
Aramus guarauna (Linnaeus, 1766)	Limpkin	R	R	
Rallidae				
Pardirallus sanguinolentus (Swainson, 1838)	Plumbeous Rail	R	R	
Gallinula galeata (Lichtenstein, 1818)	Common Gallinule	R	R	
Gallinula melanops (Vieillot, 1819)	Spot-flanked Gallinule	R	R	
Fulica leucoptera Vieillot, 1817	White-winged Coot	VA	R	N
Fulica armillata Vieillot, 1817	Red-gartered Coot	R	R	N
Fulica rufifrons Philippi and Landbeck, 1861	Red-fronted Coot	S	R	
Charadriidae				
Vanellus chilensis (Molina, 1782)	Southern Lapwing	VA	R	N
Pluvialis dominica (Müller, 1776)	American Golden-plover	R	N	
Charadrius collaris Vieillot, 1818	Collared Plover	S	R	
Charadrius falklandicus Latham, 1790	Two-banded Plover	R	SAM	
Charadrius modestus Lichtenstein, 1823	Rufous-chested Dotterel	R	SAM	
Oreopholus ruficollis (Wagler, 1829)	Tawny-throated Dotterel	R	SAM	

Continued

Table 1. *Continued.*

Family / species	English name	RA	MS	N
Recurvirostridae				
Himantopus mexicanus (Müller, 1776)	Black-necked Stilt	VA	R	N
Scolopacidae				
Limosa haemastica (Linnaeus, 1758)	Hudsonian Godwit	R	N	
Bartramia longicauda (Bechstein, 1812)	Upland Sandpiper	R	N	
Tringa melanoleuca (Gmelin, 1789)	Greater Yellowlegs	S	N	
Tringa flavipes (Gmelin, 1789)	Lesser Yellowlegs	S	N	
Tringa solitaria Wilson, 1813	Solitary Sandpiper	R	N	
Calidris fuscicollis (Vieillot, 1819)	White-rumped Sandpiper	A	N	
Calidris bairdii (Coues, 1861)	Baird's Sandpiper	S	N	
Calidris melanotos (Vieillot, 1819)	Pectoral Sandpiper	S	N	
Calidris himantopus (Bonaparte, 1826)	Stilt Sandpiper	S	N	
Phalaropus tricolor (Vieillot, 1819)	Wilson's Phalarope	S	N	
Calidris canutus (Linnaeus, 1758)	Red Knot	S	N	
Gallinago paraguaiae (Vieillot, 1816)	South American Snipe	R	P	
Tryngites subruficollis (Vieillot, 1819)	Buff-breasted Sandpiper	R	N	
Jacanidae				
Jacana jacana (Linnaeus, 1766)	Wattled Jacana	R	R	
Rostratulidae				
Nycticryphes semicollaris (Vieillot, 1816)	South American Painted-snipe	R	R	
Laridae				
Chroicocephalus maculipennis (Lichtenstein, 1823)	Brown-hooded Gull	VA	R	N
Chroicocephalus cirrocephalus (Vieillot, 1818)	Gray-hooded Gull	A	R	N
Larus dominicanus Lichtenstein, 1823	Kelp Gull	S	R	N
Gelochelidon nilotica (Gmelin, 1789)	Gull-billed Tern	S	R	N
Sterna trudeaui Audubon, 1838	Snowy-crowned Tern	R	P	
Sternula superciliaris (Vieillot, 1819)	Yellow-billed Tern	S	P	
Rynchopidae				
Rynchops niger Linnaeus, 1758	Black Skimmer	R	P	
Columbidae				
Columbina picui (Temminck, 1813)	Picui Ground-dove	A	R	N
Columba livia Gmelin, 1789	Rock Pigeon	A	R	N
Patagioenas picazuro (Temminck, 1813)	Picazuro Pigeon	A	R	N
Patagioenas maculosa (Temminck, 1813)	Spot-winged Pigeon	S	R	N
Zenaida auriculata (Des Murs, 1847)	Eared Dove	VA	R	N
Cuculidae				
Coccyzus melacoryphus Vieillot, 1817	Dark-billed Cuckoo	S	R	
Guira guira (Gmelin, 1788)	Guira Cuckoo	A	R	N
Tapera naevia (Linnaeus, 1766)	Striped Cuckoo	R	R	
Tytonidae				
Tyto alba (Scopoli, 1769)	Barn Owl	S	R	N
Strigidae				
Megascops choliba (Vieillot, 1817)	Tropical Screech-owl	S	R	N
Athene cunicularia (Molina, 1782)	Burrowing Owl	A	R	N
Asio flammeus (Pontoppidan, 1763)	Short-eared Owl	R	R	
Trochilidae				
Chlorostilbon lucidus (Shaw 1812)	Glittering-bellied Emerald	S	R	
Alcedinidae				
Megaceryle torquata (Linnaeus, 1766)	Ringed Kingfisher	R	R	
Chloroceryle americana (Gmelin, 1788)	Green Kingfisher	R	R	
Picidae				
Colaptes melanochloros (Gmelin, 1788)	Green-barred Woodpecker	S	R	N
Colaptes campestris (Vieillot, 1818)	Campo Flicker	A	R	N
Falconidae				
Caracara plancus (Miller, 1777)	Southern Caracara	S	R	N
Milvago chimango (Vieillot, 1816)	Chimango Caracara	A	R	N
Falco sparverius Linnaeus, 1758	American Kestrel	S	R	
Falco femoralis Temminck, 1822	Aplomado Falcon	R	R	
Falco peregrinus Tunstall, 1771	Peregrine Falcon	R	P	
Psittacidae				
Myiopsitta monachus (Boddaert, 1783)	Monk Parakeet	A	R	N

melanopis (Gmelin, 1789), *Charadrius falklandicus* Latham, 1790, *Charadrius modestus* Lichtenstein, 1823 and *Oreopholus ruficollis* (Wagler, 1829), and three Northern Austral Migrants: *Theristicus caerulescens* (Vieillot, 1817), *Platalea ajaja* Linnaeus, 1758 and *Mycteria americana* Linnaeus, 1758. We also recorded 17 Partial Migrant species: *Dendrocygna bicolor* (Vieillot, 1816), *Dendrocygna viduata* (Linnaeus, 1766), *Cygnus melancoryphus* (Molina, 1782), *Coscoroba coscoroba* (Molina, 1782), *Callonetta leucophrys* (Vieillot, 1816), *Amazonetta brasiliensis* (Gmelin, 1789), *Anas sibilatrix* Poeppig, 1829, *Anas cyanoptera* Vieillot, 1816, *Netta peposaca* (Vieillot, 1816), *Heteronetta atricapilla* (Merrem, 1841), *Geranoaetus melanoleucus* (Vieillot, 1819), *Geranoaetus albicaudatus* (Vieillot, 1816), *Falco peregrinus* Tunstall, 1771, *Gallinago paraguaiae* (Vieillot, 1816), *Sterna trudeaui* Audubon, 1838, *Sternula superciliaris* (Vieillot, 1819) and *Rynchops niger* Linnaeus, 1758. Finally, we recorded the presence of two altitudinal migrants: *Phoenicoparrus andinus* (Philippi, 1854) and *Phoenicoparrus jamesi* Sclater, 1886.

Most species were rare (n = 41) or scarce (n = 36) (Table 1). However, eight species were very abundant: *Anas platalea* Vieillot, 1816, *Phoenicopterus chilensis* Molina, 1782, *Plegadis chihi* (Vieillot, 1817), *Fulica leucoptera* Vieillot, 1817, *Vanellus chilensis* (Molina, 1782), *Himantopus mexicanus* (Statius Muller, 1776), *Chroicocephalus maculipennis* (Lichtenstein, 1823) and *Zenaida auriculata* (Des Murs, 1847).

Thirty-six species were recorded doing nesting activities or rearing chicks (Table 1). During the survey period we observed colonies of *Larus dominicanus* Lichtenstein, 1823 and *Phoenicopterus chilensis*. We recorded two nesting events of the latter species in summer 1999 and 2010 (about 400 and 150 nests, respectively; M. Romano, pers. obs.).

DISCUSSION

In a previous study of this Ramsar site based on ten years of waterbird surveys (1992–2002), we reported 74 species from 17 families (Romano et al. 2005). In the present checklist, updated with information from 12 more survey years, we add 35 species: four waterbird species from three families: *Phoenicoparrus jamesi*, *Oreopholus ruficollis*, *Megaceryle torquata* (Linnaeus, 1766) and *Chloroceryle americana* (Gmelin, 1788) and 31 non-passerine landbird species from nine families (Table 1). These 109 species represent almost half of the non-passerine birds reported by Fandiño and Giraudo (2010) for the whole of Santa Fe province (i.e., 231 species). These results confirm the importance of this wetland as a site of high environmental heterogeneity and biological diversity within a homogeneous and low-diversity agricultural matrix (Di Giacomo et al. 2005; Romano et al. 2005; Giraudo et al. 2008; Romano et al. 2014).

The importance of long-term surveys of waterbirds is suggested by the record of 18 bird species at Melincué Ramsar site that were not reported for this area according to the species distribution maps shown in a recently published field guide to the birds of the Santa Fe province (de la Peña 2010). Among them, there were 13 species of waterbirds: *Chauna torquata* (Oken, 1816), *Amazonetta brasiliensis*, *Phoenicoparrus jamesi*, *Mycteria americana*, *Theristicus caerulescens*, *Charadrius falklandicus*, *Charadrius modestus*, *Calidris canutus*, *Tryngites subruficollis*, *Nycticryphes semicollaris* (Vieillot, 1816), *Rynchops niger*, *Megaceryle torquata* and *Chloroceryle americana*) and five landbird species, *Accipiter striatus* Vieillot, 1808, *Geranoaetus albicaudatus*, *Falco peregrinus*, *Coccyzus melacoryphus* Vieillot, 1817, and *Megascops choliba* (Vieillot, 1817).

All waterbird species recorded at our study site were also reported at Laguna Mar Chiquita (Córdoba province), a very large wetland located 350 km north of Laguna Melincué in the Chaco region (Torres and Michelutti 2006). In contrast, 13 waterbirds recorded at Melincué were not detected in a series of 314 surveys carried out in different seasons at 66 wetlands in the southeast Córdoba province from 2007–2010, less than 100 km west of our study area (Brandolin et al. 2011). Most of these waterbird species are migrants: *Phoenicoparrus jamesi*, *Theristicus caerulescens*, *Theristicus melanopis*, *Charadrius modestus*, *Oreopholus ruficollis*, *Gallinago paraguaiae*, *Calidris canutus*, *Tryngites subruficollis*, *Amazonetta brasiliensis*, *Sternula superciliaris*, whereas few others are residents: *Jacana jacana* (Linnaeus, 1766), *Megaceryle torquata* and *Chloroceryle americana*. The abundance of these species was very low at Laguna Melincué, thus they were probably recorded because of our extensive and prolonged surveys carried out at this wetland.

This study confirms the winter presence of Andean and James's flamingos in the study area. The Andean Flamingo is classified as Vulnerable by the IUCN Species Survival Commission, as well as listed in Appendix II of the Convention on International Trade in Endangered Species (CITES), Appendix I of the Convention of Migratory Species (CMS), and the US Endangered Species Act (IUCN 2013). In contrast, the James's Flamingo is classified as Near Threatened by IUCN, listed in Appendix II of CITES and in Appendices I and II of CMS (IUCN 2013). Moreover, both flamingo species are classified as *En peligro* (i.e., Endangered) for Argentina (López Lanús et al. 2008).

The Andean Flamingo was first recorded in Laguna Melincué several years ago (Romano et al. 2002), and its numbers have fluctuated throughout this time period (Romano et al. 2009; Derlindati et al. 2014; M. Romano pers. obs.). In some years this wetland hosted more than 30% of its known world population (Caziani et al. 2007;

Romano et al. 2008), leading to its inclusion as a priority site in the High Andean Flamingo Wetland Network (Marconi and Sureda 2008). Andean Flamingos were also recorded at Laguna Mar Chiquita, 350 km further north in Córdoba province (Torres and Michelutti 2006; Caziani et al. 2007) and in several lowland wetlands of the Pampas located at the same latitude that Melincué (Romano et al. 2008; Brandolin and Ávalos 2010; Brandolin et al. 2011). In contrast, James's Flamingos were recently reported for the first time in Pampas wetlands at Melincué in 2011 and 2012 (Cruz et al. 2013), and recorded again in winter 2013 (M. Romano pers. obs.). They were also recorded at Laguna Mar Chiquita (Torres and Michelutti 2006; Caziani et al. 2007), but there is no other winter record for James's Flamingos at this latitude (Cruz et al. 2013).

We recorded 10 individuals of *Theristicus caerulescens* in 1993 and three others in 1999. Our records records are important because to our knowledge there are very few reports of this species in the Pampas region (Zotta 1935; Narosky and Di Giacomo 1993; de la Peña 1999; Romano et al. 2005). This ibis inhabits wetlands of the Chaco region located farther north from our study site (de la Peña 1999, 2010).

It is also important to highlight the presence of several individuals of *Calidris canutus* at our study site: 128 in April 1999 (autumn), 18 in February 2007 and five in February 2008 (summer). In Argentina, this summer-migrant is usually observed along seashores from Buenos Aires to Tierra del Fuego. At Melincué, the higher number of individuals recorded in autumn, emphasizes the potential importance of this inland site as a resting and feeding area for this shorebird species while migrating to the Northern Hemisphere (Blanco et al. 1992). To our knowledge, besides our study site (Romano et al. 2005), there is only one other inland record from Mar Chiquita Lake (Nores and Yzurieta 1979; Torres and Michelutti 2006).

Laguna Melincué is also an important site for the reproduction of several waterbird species. Besides our own observations, it has been cited as an important and frequent nesting site for one tern (*Gelochelidon nilotica* (Gmelin, 1789)), three gulls (*Chroicocephalus maculipennis*, *Chroicocephalus cirrocephalus* (Vieillot, 1818), *Larus dominicanus*), some anatids including *Coscoroba coscoroba* and *Anas bahamensis* (Gmelin, 1789), and *Phoenicopterus chilensis* (Narosky and Izurieta 1973; de la Peña 1992).

This large wetland is affected by multiple factors such as long-term cycles of hydrological dynamics (Romano et al. 2005; Guerra et al. 2015), climate change and anthropogenic impact (Marconi and Sureda 2008; Romano et al. 2014). Some of these factors are common to other large wetlands of the Chaco-Pampas region (Piovano et al. 2009), whereas others are particular for this site (e.g., water pumping; Romano et al. 2006). All these factors in turn may affect wildlife dynamics. For instance, in the last decades the density of bird species in the Pampas region has been affected by the expansion of agriculture (Filloy and Bellocq 2007; Medán et al. 2011; Gavier-Pizarro et al. 2012). As a consequence, many bird species have decreased their densities due to loss of their habitats (Bilenca et al. 2012), while others have increased their numbers due to a higher provision of food (Gavier-Pizarro et al. 2012). The latter is possibly the reason for the high densities at Laguna Melincué of *Plegadis chihi*, *Chroicocephalus maculipennis* and *Zenaida auriculata*. Therefore, research and monitoring programs on habitat and species conservation must be carried out over a relatively long time span, in order to detect numerous events, factors and interactions that could not be recorded or may be hidden in short-term research programs.

In conclusion, in this updated checklist we provide information about new records and biological aspects of some non-passerine bird species at Melincué Ramsar site. We consider that this baseline knowledge of non-passerine birds based on long-term surveys will be useful to assist future conservation studies in this highly threatened area.

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